

REMARKS

Claims 19-36 remain in this application. Claim 37 has been added and does not add new subject matter.

In the Office Action, Claim 28 is rejected under 35 U.S.C. §112, second paragraph. The Patent Office alleges that the claim term "the diaphragm" lacks antecedent basis. Applicant believes that this rejection is improper. Indeed, Claim 27 introduces the claim term "a diaphragm". Claim 28 depends from Claim 27 and further defines that the diaphragm is composed of a metal. Thus, Applicant believes that sufficient support exists for antecedent basis with respect to the alleged claim term at issue. Therefore, Applicant respectfully submits that Claim 28 fully complies with 35 U.S.C. §112, second paragraph.

Accordingly, Applicant respectfully requests that the rejection of Claim 28 under 35 U.S.C. §112, second paragraph, be withdrawn.

In the Office Action dated December 30, 2003, the Examiner rejected Claims 19-21, 25-27, 30 and 33-36 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,339,051 to Koehler et al. ("*Koehler*") in view of U.S. Patent No. 5,713,939 to Nedungadi et al. ("*Nedungadi*"). Applicant submits that the cited references, alone or in combination, fail to disclose or suggest the claimed invention. Further, Applicant believes that the only justification for combining the cited art in support of the obviousness rejections is based on hindsight reconstruction.

The present invention as claimed in Claim 19 is directed to a passive microphone for wirelessly transmitting sound information to a receiving unit. The passive microphone includes an antenna and a piezoelectric device connected to the antenna. The antenna receives electromagnetic excitation energy from the receiving unit and wirelessly transmits electrical signals to the receiving unit. The piezoelectric device is connected to the antenna such that the piezoelectric device receives and stores electromagnetic excitation from the antenna and converts detected acoustic signals into electrical signals bearing sound information.

Koehler fails to teach or suggest a piezoelectric device connected to an antenna that receives electromagnetic excitation energy from a receiving unit as required by the claimed

invention. *Koehler* merely mentions a piezoelectric device in the context of U.S. Patent No. 4,362,961 to Gerber et al. ("*Gerber*") in relation to resonators and their support structures. The Patent Office relies on this reference for a piezoelectric device that is a purported substitute for the sensor/oscillator 266 of the passive beacon illustrated in Fig. 17 (above). The piezoelectric device according to *Gerber* is an encapsulated piezoelectric resonator device wherein a vibrating member and a frame member are formed integrally on a single substrate. The resonator member is connected to a number of electrodes, and connections to the electrodes are provided by passages through the two cover members. However, the encapsulated piezoelectric resonator device is not connected to an antenna for receiving and storing electromagnetic excitation energy from the antenna such that at least one acoustic signal is detected and converted into at least one electrical signal which includes sound information. Therefore, it would not have been obvious to a person skilled in the art to use the encapsulated piezoelectric resonator device disclosed in *Gerber* as a piezoelectric device as claimed.

Assuming arguendo that it would have been obvious to substitute the encapsulated piezoelectric resonator device disclosed in *Gerber* for the resonator-oscillator of *Koehler*, the sensor beacon taught and illustrated in *Koehler* is not connected to an antenna that receives electromagnetic excitation energy from a receiving unit such that the piezoelectric device receives and stores electromagnetic excitation from the antenna. As illustrated in Fig. 17 above, the sensor/oscillator 266 is connected to the signal transmitting antenna 268, but is not connected to the antenna 262 that receives power radiated from an external power source 250. Therefore, *Koehler* fails to teach or suggest a piezoelectric device connected to an antenna that receives electromagnetic excitation energy from a receiving unit such that the piezoelectric device receives and stores electromagnetic excitation from the antenna as required by the claimed invention.

Further, *Koehler* fails to disclose or suggest a piezoelectric device that wirelessly transmits electrical signals to the receiving unit as required by the claimed invention. As admitted by the Patent Office, "*Koehler* does not disclose the electrical signals are wirelessly transmitted back to the same receiving unit that transmitted the excitation energy or via the

same antenna.” See Office Action, page 3. The Patent Office, therefore, must rely on *Nedungadi* to remedy the deficiencies of *Koehler*.

Contrary to the Patent Office’s position, *Nedungadi* is deficient with respect to an antenna that receives electromagnetic excitation energy from a receiving unit and that wirelessly transmits electrical signals bearing sound information to the receiving unit as required by the claimed invention. *Nedungadi* discloses an implantable medical device having a battery capable of being recharged from a transcutaneous energy transmission device. A coil is selectively coupled to the battery via a switch for receiving energy from the transcutaneous energy transmission device using the principle of mutual induction. Mutual induction as disclosed by *Nedungadi* includes an alternating current in an external primary coil which induces electrical energy through the patient’s skin and body tissues to a secondary coil in the implanted device. Signals generated by the implantable device indicating the level of charge of the battery control the level of energy transfer to the implantable device. Specifically, encoded signals indicating the amount of current through, or voltage of, the battery are transmitted through the coil to the external transcutaneous energy transmitter. See *Nedungadi*, col. 3, lines 1-20. The signals, however, do not bear sound information as required by the claimed invention. Therefore, *Nedungadi* fails to disclose or suggest an antenna as claimed that wirelessly transmits electrical signals bearing sound information to a receiving unit from which it receives electromagnetic excitation energy.

To support the combination and/or modification of the cited art to allegedly arrive at the claimed invention, the Patent Office has had to apply hindsight reconstruction to selectively piece together teachings of three disparate references in an attempt to recreate what the claimed invention discloses. Without the requisite motivation to combine/modify these teachings, however, this combination/modification is clearly improper as being hindsight reconstructive. See *In re O’Farrell*, 853 F.2d., 894, 902-903 (Fed. Cir. 1988). As the Federal Circuit further explained, “the mere fact that the prior art may be modified in the manner suggested by the examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.” *In re Fritch*, 23 U.S.P.Q. 2d 1780, 1783-84 (Fed. Cir. 1992).

It is clear from the discussion above that neither *Koehler*, *Gerber* or *Nedungadi* alone or in combination, teach or suggest a piezoelectric device that is connected to an antenna that receives electromagnetic excitation energy from the receiving unit and wirelessly transmits electrical signals to the receiving unit such that the piezoelectric device receives and stores electromagnetic excitation from the antenna and converts detected acoustic signals into electrical signals bearing sound information as required by the claimed invention. Consequently, none of the cited references suggest the desirability of this modification and thus, even if combinable, fail to render obvious the claimed invention.

Accordingly, Applicant respectfully requests that the rejection of Claims 19 to 21, 25 to 27, 30 and 33 to 36 be withdrawn.

With respect to the remaining rejections, the Patent Office cannot rely on any one reference or combination thereof to remedy the deficiencies of *Koehler*, particularly with respect to its deficiencies regarding the piezoelectric feature as claimed and discussed above.

Specifically, Claim 20 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Koehler* as modified as applied to Claim 19 and further in view of U.S. Patent No. 4,641,054 to Takahata et al. ("*Takahata*"). The Patent Office relies on *Takahata* for its alleged teachings regarding a piezoelectric device that temporarily stores the excitation energy from the receiving unit in the form of mechanical vibrations. Applicant respectfully submits this rejection is improper. Furthermore, Claim 20 depends from Claim 19 which is allowable based on the reasons discussed above. Therefore, Applicant respectfully submits that Claim 20 is allowable.

Claim 22 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Koehler* as modified as applied to Claim 19 and further in view of U.S. Patent No. 4,065,735 to Palfreeman et al. ("*Palfreeman*"). The Patent Office relies on *Palfreeman* for its alleged teachings regarding a piezoelectric diaphragm having a surface acoustic wave resonant pattern. Applicant respectfully submits this rejection is improper. Furthermore, Claim 22 depends from Claim 19 which is allowable based on the reasons discussed above. Therefore, Applicant respectfully submits that Claim 22 is allowable.

Claims 23, 24 and 28 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Koehler* as modified as applied to Claim 22 and further in view of U.S. Patent No. 5,757,250 to Ichikawa et al. ("*Ichikawa*"). The Patent Office relies on *Ichikawa* for its alleged teachings regarding a diaphragm composed of a crystal as required in Claim 23, a diaphragm composed of lithiumniobate as required by Claim 24 and a diaphragm composed of a metal as required by Claim 28. Applicant respectfully submits these rejections are improper. Furthermore, Claims 23 and 24 depend from Claim 22 and Claim 28 depends from Claim 26. Because Claim 22, and Claim 28 each depend from Claim 19 which is allowable based on the reasons discussed above, Applicant respectfully submits that Claims 23, 24 and 28 are also allowable.

Claims 31 and 32 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Koehler* as modified as applied to Claim 22 and further in view of U.S. Patent No. 5,751,418 to Murase et al. ("*Murase*"). The Patent Office relies on *Murase* for its alleged teachings regarding one or more devices for detecting acoustic signals which are configured such that the detected acoustic signals are differentially converted into electrical signals bearing sound information as required in Claim 31 and an additional device that compensates for disturbance variables as required in Claim 32. Applicant respectfully submits that these rejections are improper. Furthermore, Claims 31 and 32 depend from Claim 19 which is allowable based on the reasons discussed above. Therefore, Applicant respectfully submits that Claims 31 and 32 are also allowable.

Based on at least these reasons, Applicant believes that the cited art is deficient with respect to the claimed invention. Therefore, Applicants believe that the cited art fails to render obvious the claimed invention. Accordingly, Applicants respectfully request that the rejection of Claims 20, 22, 23, 24, 28, 31 and 32 be withdrawn.

Applicant notes for the record that Claim 37 has been newly added. This claim effectively represents Claim 29 in independent form. Thus, Claim 37 should be allowed as indicated by the Patent Office on page 9.

For the foregoing reasons, Applicant submits that the present application is in condition for allowance and earnestly solicits reconsideration of same.

Respectfully submitted,

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